

Angelina Jolie's decision to have her breasts removed was one that was made using the best available information in order to prevent breast cancer in the future. Photo: AFP

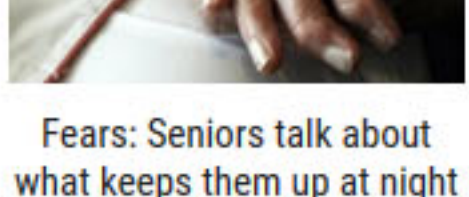
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## Cancer screening: What you need to know before you start

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Cancer is now almost a household word, with many of us having in some way or other been affected by this dreaded disease.

The fear is not misplaced. Cancer is the leading cause of death in a number of developed countries with populations similar to ours, including Singapore and Hong Kong.

In Malaysia, since 2012, the Health Ministry has noted that cancer is the second commonest cause of death in private hospitals, responsible for a quarter of total deaths per year.

Cancer treatment outcomes in Malaysia are not great, largely due to the late presentations of the disease. And yet, in developed countries like Singapore, the United States and Europe, cancer cure rates are improving yearly.

The difference is diagnosis at an earlier stage. The Japanese, for example, have struggled with stomach cancer for decades, but treatment outcomes are now extremely good as the tumours are diagnosed early following nationwide endoscopic screening.

Cancer prevention is the best way to reduce the threat of cancer. There are several modifiable risk factors, which when addressed, can sharply decrease the likelihood of cancer.

Chief among these are smoking and obesity. Efforts to educate and spur those at risk to action are on-going. These must be emphasised and inculcated into the way we think.

A healthy lifestyle is not an event, it is a habit. Nevertheless, despite our best efforts, there remains a large number of people who will be affected by this disease on account of "unmodifiable" (read genetic) factors.

Clearly, the key to successful outcomes with cancer is early diagnosis. The problem with cancer is that in most cases, in the early stages of the disease, one is not sick. There are no symptoms. The only way to detect these tumours early is to perform screening tests before the symptoms develop while one is apparently healthy.

Cancer screening tests are misunderstood. Except in a few types of cancer, you cannot screen for cancer using a blood test alone. This simply does not work.

For example, the carcino embryonic antigen (CEA) often used to screen for colon cancer is not accurate enough to detect early colorectal cancer. This means that a negative result does not mean that you do not have the disease.

Clearly, if you are concerned about having cancer, you need better accuracy.

The truth is better tests are available. There are many tests, but the best test for you will depend on your risk for developing cancer.

Risk assessment for cancer is based on a number of factors. Cancer is a genetic disease, in the sense that gene mutations are the primary triggers.

However, the mutations are just as likely to be somatic rather than germ line, which means you do not pass this risk down to your kids. Rather, the effect of your environment has instigated the disease in you.

As such, start cancer screening with a visit to a consultant experienced in the diagnosis and treatment of cancer. This will comprise a detailed interview regarding lifestyle and family history.

A suitable screening test can then be discussed. This may involve specific tests which need to be performed by trained professionals. This is currently the only way to get the desired outcome in the treatment of a disease as inevitable as cancer.

The aim after all, is to provide peace of mind so that you may confidently plan your future without anxiety.

### Screening matters

The process of screening for cancer comprises three steps:

1. Consultation, physical examination and preliminary tests – The purpose of this is to bring you face to face with information you need before screening for cancer. This is because screening is not a straightforward exercise. There are caveats you must understand and accept before proceeding.

We are estimating and evaluating risks that may have a serious effect on your health. A complete consultation allows your doctor to determine if you do indeed require formal cancer screening and it may be reassuring to you to find out that you really do not.

2. Risk assessment and screening protocol – Risk factors for developing cancer are identified from large epidemiological studies. More often than not, they are based on populations different from ours.

For example, the risk assessment tool available on the US National Institutes of Health (NIH) website for risk of breast cancer is based on Caucasian patients and cannot be directly applied to a typical Malaysian population.

Another contentious issue in risk assessment for cancer is that the risk is often relative. A smoker is often quoted to be 23 times more likely than a non-smoker to develop lung cancer.

This sounds like a large number, but the actual risk of a non-smoker is about 50 per 100,000 person-years.

For a smoker? About 1,200 per 100,000 person-years. The risk per year is still small, but increases with time.

For these reasons, it is vital to have your risk assessed and explained to you by a professional before you embark on screening.

A variety of screening tests for the most common cancers have been identified. Each test comes with a degree of accuracy, which has to be balanced with the degree of cost and risks.

The aim is always to identify cancer while it is small and treatable, which if you did already have the disease, would lead to the best possible outcome.

3. Risk reduction advice and action – Professional advice regarding risk reduction is sometimes considered a no-brainer – telling you to stop smoking to cut down your chances of dying of lung cancer is hardly rocket science.

However, you may want to know how to quit smoking, you may want to know that you have pharmacological options that have been proven to help you quit smoking. You may also want to know that 10-15% of non-smoking persons diagnosed with lung cancer reported exposure to second-hand smoke.

Sometimes, risk reduction may involve serious, drastic measures.

A recent example is the surgical removal of breasts followed by surgical breast reconstruction in the case of Angelina Jolie.

Clearly, this was a decision that was made using the best available information in order to prevent what was almost a definite diagnosis of breast cancer in the future.

Drastic, yes but the most effective way to prevent an almost certain threat to life.

### What about a full body scan?

Screening aims to reduce your chances of dying of cancer. However, it is impossible to screen for all possible sites of the disease.

Today, we have the means to look inside the human body entirely. We even have the means to look for the biological activity of cancer cells, which is by itself like a fourth dimension in cancer diagnosis.

This technology is known as Positron Emission Tomography (PET), and it involves using radioactive molecules which are metabolised by cancer cells differently compared to normal cells.

When combined with Computerised Tomography (CT) scanning, the end result is as close as can be to a whole body scan for finding cancer.

Unfortunately, the technology is not yet perfect in that there is a risk of identifying lesions which mimic cancer, but really are not. This may lead to unnecessary invasive procedures to clarify matters.

Furthermore, the radioisotopes used are prohibitively expensive. It is therefore unlikely that PET scans can be used for routine cancer screening at this time.

Screening for cancer needs to be individualised. A systematic effort to identify your risk of developing cancer, with specific tests focused on these risks, will achieve the desired effect.

For example, a 50-year-old lady smokes one packet of cigarettes a day for the last 20 years. She has a sibling who had breast cancer diagnosed at the age of 34. She is otherwise well. Her preliminary blood tests detected a blood haemoglobin level of 10.5 g%. No other abnormalities were detected.

This patient's present clinical condition and living environment put her at risk for a number of common cancers. She is at risk of developing lung cancer, breast cancer and there is a chance that she may already have colonic cancer.

It would be wise if she underwent a low dose CT chest, mammography and a stool test for occult bleeding. These tests have a very high chance of detecting cancer (a positive stool for occult blood will require a colonoscopy to detect the underlying colorectal cancer).

This is not to say that these tests are completely foolproof as there is a small chance one can be affected in between testing or tests may be incorrectly interpreted. One may also be inflicted by a kind of cancer that these tests are not designed to diagnose.

However, the chances of missing a cancer with these tests are much less than they would be with other kinds of tests. With regular follow up, it is likely that early symptoms of any cancer will be recognised sooner than not. Some tests used for screening have risks of their own. For example, use of CT scans for screening comes with a small risk of developing cancer on account of radiation exposure.

With modern multi-slice scanners, this risk is decreasing. However, each of us will have to be convinced of the benefit of these tests in the long run as these are stacked against such risks. Risk reduction advice for our patient would start with advice on the various methods available to assist one to stop smoking.

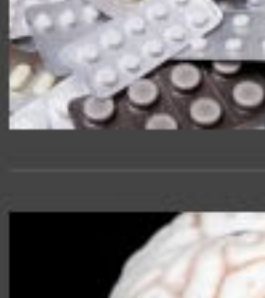
This can include behavioural changes and nicotine replacement. Detailed genetic counselling and testing for mutations that are known to be associated with breast cancer is another option that can be discussed.

These tests are available, but require professional interpretation. Our patient should be advised to keep her weight in a healthy range and would do well to take a diet rich in vegetables and fruits while avoiding red meats.



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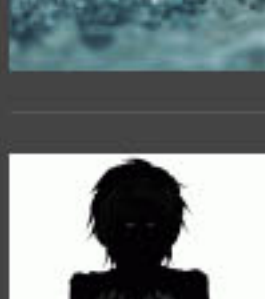
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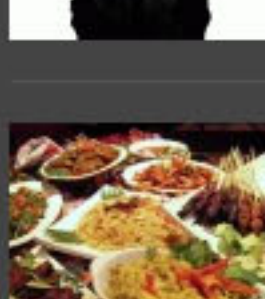
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